

REMARKS

The Examiner has rejected claims 1-2, 5-9, 12-13, 17, 20-21, and 31-32 under 35 U.S.C. § 102(e) as being anticipated by Yin et al. U.S. Patent No. 6,379,575. Claims 14-16 and 30 are rejected under § 103(a) as being unpatentable over Yin et al. in view of Tsai et al. U.S. Patent No. 6,592,817. Claims 10 and 11 are rejected under § 103(a) as being unpatentable over Yin et al. in view of Chow et al. U.S. Patent No. 6,872,322. Claim 18 is rejected under § 103(a) as being unpatentable over Yin et al. in view of Kim et al. U.S. Patent No. 6,436,303. Claims 23 and 24 are rejected under § 103(a) as being unpatentable over Yin et al. in view of Nakata et al. U.S. Patent No. 5,989,928.

With respect to the rejection of Claims 1-2, 5-9, 12-13, 17, and 20-21 under § 102(e) over Yin et al., Applicants respectfully traverse. Independent claim 1 distinguishes over the Yin et al. patent for at least the reason that the erosion product that is monitored is an erosion product of the system component during the process. As explained in col. 10, line 39 to col. 12, line 42 of Yin et al., a substrate placed within the etching chamber is etched with an energized etchant gas. This etching process is monitored and stopped upon detection of a specified change in light emissions corresponding to detectable gaseous species derived from the etched substrate. Thus, Yin et al. monitor only erosion products derived from the etched substrate, not from the system component. After the etching process, as or after the substrate is being transported out of the chamber, the chamber is subjected to a cleaning and conditioning process to remove etch residues from system components "substantially without eroding the walls and components in the chamber." (E.g., Col. 14, lines 17-19.) Yin et al. do not mention a monitoring process for erosion products with respect to the cleaning and conditioning step.

For there to be anticipation of the claims herein, Yin et al. must teach each and every element of the claimed invention. As explained in col. 10, line 39 to col. 12, line 42 of Yin et al., the erosion products that are monitored are derived from the etched substrate during the substrate etching process. Yin et al. do not teach or suggest that the erosion product that is monitored is an erosion product of the system component by the reactant gas during the substrate etching process. Furthermore, Yin et al. do not teach or suggest that any erosion product is monitored during the cleaning process. Because Yin et al. do not teach, during any step of their multi-step process, the monitoring of an erosion product of a system component material, there can be no anticipation of the claimed subject matter of claim 1 and its dependent claims. It is therefore respectfully requested that the rejection of claims 1-2, 5-9, 12-13, 17, and 20-21 under § 102(e) over Yin et al. be withdrawn.

With respect to the rejection of Claims 31 and 32 under § 102(e) over Yin et al., Applicants respectfully traverse. Independent claim 31 distinguishes over Yin et al. for at least the reason that the erosion product that is monitored is an erosion product of the protective coating on a system component during the process. As explained in col. 6, line 66 to col. 7, line 10 of Yin et al., the walls of the etching chamber are coated with a ceramic material, such as boron carbide, boron nitride, silicon, silicon oxide, silicon carbide, or silicon nitride, to protect the walls from chemical erosion in particular etchant gas compositions. However, Yin et al. do not teach or suggest that the erosion product that is monitored is an erosion product of the protective coating. Again, Yin et al. only disclose monitoring erosion products formed from materials of the substrate as the substrate is being etched to determine when to stop the etching process. Because Yin et al. do not teach, during any step of their multi-step process, the

monitoring of an erosion product of a protective coating material on a system component, there can be no anticipation of the claimed subject matter of claim 31 and its dependent claim. It is therefore respectfully requested that the rejection of claims 31 and 32 under § 102(e) over Yin et al. be withdrawn.

With respect to the rejection of Claims 14-16 and 30 under § 103(a) over Yin et al. in view of Tsai et al., Applicants respectfully traverse for at least the same reasons provided with respect to the rejection of claim 1 over Yin et al. The Tsai et al. patent does not cure the deficiencies of Yin et al. Specifically, Tsai et al. do not teach or suggest monitoring the system for release of an erosion product of the system component itself. Tsai et al. avoid erosion of the system component, whereas Claim 1 and its independent claims in the present application permit the system component to be eroded as an indication of when to stop the cleaning process. Tsai et al. state in col. 1, line 56-62 that “[i]t is also desirable to clean chamber walls and surfaces without erosion of chamber surfaces” and “[t]he present invention satisfies these needs.” The monitoring process of Tsai et al. monitors the effluent in various ways, but there is no teaching or suggestion that the effluent be monitored for an erosion product of the system component itself. In fact, Tsai et al. teach against monitoring the system for release of an erosion product of the system component itself because the Tsai et al. patent specifically strives to avoid any erosion of the system component. Where the prior art teaches against the claimed invention, the rejection cannot stand. Therefore, Applicants respectfully request that the rejection of claims 14-16 and 30 under § 103(a) be withdrawn.

With respect to the rejection of Claims 10 and 11 under § 103(a) over Yin et al. in view of Chow et al., Applicants respectfully traverse for at least the same reasons provided with

respect to the rejection of claim 1 over Yin et al. The Chow patent does not cure the deficiencies of Yin et al. Specifically, Chow et al. do not teach or suggest monitoring the system for release of an erosion product of the system component itself. It is therefore respectfully requested that the rejection of Claims 10 and 11 under § 103(a) be withdrawn.

With respect to the rejection of Claim 18 under § 103(a) over Yin et al. in view of Kim et al., Applicants respectfully traverse for at least the same reasons provided with respect to the rejection of claim 1 over Yin et al. The Kim et al. patent does not cure the deficiencies of Yin et al. Specifically, Kim et al. do not teach or suggest monitoring the system for release of an erosion product of the system component itself. It is therefore respectfully requested that the rejection of Claim 18 under § 103(a) be withdrawn.

With respect to the rejection of Claims 23 and 24 under § 103(a) over Yin et al. in view of Nakata et al., Applicants respectfully traverse for at least the same reasons provided with respect to the rejection of claim 1 over Yin et al. The Nakata et al. patent does not cure the deficiencies of Yin et al. Specifically, Nakata et al. do not teach or suggest monitoring the system for release of an erosion product of the system component itself. It is therefore respectfully requested that the rejection of Claims 23 and 24 under § 103(a) be withdrawn.

In view of the foregoing remarks given herein, Applicants respectfully believe this case is in condition for allowance and respectfully request allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Application No. 10/674,703
Response dated June 1, 2006
to Office Action mailed February 13, 2006

Applicants are of the opinion that a one-month extension of time is due with this Response. Payment of the charge due for this extension of time is made on the attached Electronic Fee Sheet. If any additional charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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